

Water and Energy Conservation in the Kitchen

The hospitality sector can see a reduction in water and energy usage by implementing sustainable kitchen opportunities, creating an environmentally friendly workplace. A restaurant-style kitchen consumes thousands of gallons of water a day, but switching to low flow water efficient appliances you could save you over 37% in water resources.¹ While every hour hundreds of gallons of water are consumed in the kitchen, there are also large quantities of electricity required to power the machinery. This resource summary provides information on efficient appliances and electronics and other maintenance procedures that will create a cost-effective plan for saving water and energy in the kitchen.

Sustainable Starting Points

To start moving toward operational efficiency, look into the U.S. Environmental Protection Agency's (EPA's) WaterSense and Energy Star certification programs. Striving for higher industry standards through green certifications can help motivate staff to reduce natural resource consumption in the kitchen. Products marked with WaterSense and Energy Star logos ensure savings through water and energy conservation.^{2,3}

Conduct water and energy audits by contacting your resource management provider to foster a better understanding of your hotel's efficiency and establish achievable goals for future utility reductions.^{4,5}

Take the H2Otel Challenge that helps those in the hospitality industry track, assess and reduce their water consumption.⁶ If your hotel runs a full in-house restaurant, consider becoming a Certified Green Restaurant by joining the network of over 40 states and Canada on a mission to green the restaurant industry.⁷

Efficient Kitchen Equipment

Evaluate the age of your kitchen appliances and, when the time comes to upgrade, select from the wide range of energy efficient products that Energy Star labels and certifies. This label indicates that the product is certified by EPA to save money and energy for the betterment of the environment.² Energy Star certifies many things from ovens, to fryers, and griddles. Be assured there is always an opportunity to boost energy usage with upgraded appliances.⁸

Dishwashers

If you use dishwashers in your hotel and are in need of an upgrade, commercial dishwashers bearing the Energy Star label are 40% more efficient than non-certified models and could save on average over \$3,000 per year over its lifetime.⁹ Also, consider purchasing an energy recovery dishwasher to advance savings by converting the heat generated in a wash cycle for future preheating energy. To avoid having to send dishes to the dishwasher more than once refrain from heavy rinsing before loads and instead soak dishes in a sink or scrape dirty dishes before placing in a dishwasher.

Remember to always run the dishwasher when it is fully loaded, this will maximize the kitchen and equipment's efficiency. The use of a dishwasher continuously outperforms manual hand cleaning in water efficiency and cleanliness.

Sinks

Incorporating a WaterSense Commercial Pre-Rinse Spray Valve is a great method of saving water. Pre-Rinse Spray Valves are low flow and use around 1.28 gallons per minute (gpm) compared to the average 1.6 gallons per minute (gpm) in the standard Pre-rinse Spray Valve. These savings equal more than 7,000 gallons per year with a WaterSense valve.¹⁰ Have non-fill prep sinks installed with a maximum flow rate of less than 1.5 gpm or, even better, at 0.5 gpm. A garbage strainer or basket placed in the bottom of the sink can save a kitchen unnecessary plumbing and maintenance by avoiding trash buildup in the pipes. This strainer will catch excess food debris from dishes that can be discarded into the trash or compost bin. This practice saves 40% of the water used with a garbage disposal and increases the life expectancy of your kitchen pipes.¹¹

Cooking Appliances

Appliance renovation is a valuable method of saving energy in the kitchen. Since these appliances rely on electricity and typically run at a high capacity through the day, the best approach for kitchen performance is with an Energy Star appliance. For more savings in the kitchen, look into water efficient ice machines, connection steamers, pasta cookers, holding cabinets and water-less woks. These appliances can transform the way water is used in the kitchen and for some processes eliminate water use entirely.¹¹

To reclaim energy and reduce cleaning time, look to install an exhaust hood energy recovery filter. It captures wasted energy in the form of heat and evaporated grease produced from the stove and converts it into energy that powers your water heater.¹²

Food Service Technology Center (FSTC) is a great resource that can guide your hotel to water and energy savings through smart green purchasing and finding rebates and educational webinars. FSTC provides an equipment list that can green your kitchen and help you establish optimal water heating and cooking ventilation designs.¹³

Water Heater

Upgrade to your current system and install an Energy Star water heater for reliable, cost effective savings. Consider switching to a tank-less water heater for energy efficiency that conserves water at the source. Also maintain energy by insulating your water pipes to reduce heat loss.

What About Fats, Oils and Greases?

Residue buildup in the plumbing caused by fats, oils and greases (FOGs)¹⁴ can back up sewer systems over time and cause serious damage to municipal sewer lines in your community. The key to saving your kitchen from these sewer problems is to prevent any spilling or dumping of FOGs down kitchen drains. Rather, collect your kitchen's FOGs in a separate container so that it can be properly disposed of.



Arizona Water Association has created a program called the Arizona Fats, Oil, and Grease (AZFOG) Group, which aims to educate those in the food service industry about FOGs. Join the group online to become part of the community.¹⁵

Biodiesel

A green solution for the disposal of FOGs generated in your kitchen is to recycle them for biodiesel fuel. Biodiesel fuel is composed of vegetable oil, animal fat or recycled restaurant grease and can be sent to facilities that use it to provide an alternative to fossil fuels.¹⁶ By recycling your restaurant's fats, oils and greases for biodiesel, not only are you saving your sewers and plumbing, but you are also lessening dependency on fossil fuels. To find a facility contact your local city for sponsored programs, or visit azrecycles.org and search "Cooking Oil".¹⁷

Kitchenettes

In suite kitchens, there are still several of the same opportunities for conservation. The hotel can maximize energy and water savings through appliances, add-ons and sustainable initiatives. Incorporate Energy Star certified appliances throughout the kitchenette. Choose an Energy Star fridge, dishwasher, microwave and even coffeemaker to guarantee cost savings and a better environment.²

Upgrade the Sink

Install an aerator to existing sinks to minimize water usage and conserve water. A great option is to install a low flow sink when it is time to replace the older sink model. These water efficient sinks can be found through WaterSense.³

Case Study: Tempe Grease Cooperative

The City of Tempe recently created the program Tempe Grease Cooperative, which organizes city restaurants to recycle their FOG to create biofuels like biodiesel. It incentivizes restaurants to better the environment by organizing a community of change to connect with how the grease going in their drains effects the public and how they can help replenish a renewable energy resource. Tempe offers benefits to members joining the cooperative through lower cost, and repair support, all while being the first city to incorporate both pricing and service quality for FOG generated in the food service industry. Today they serve nearly 20% of all restaurants in Tempe.¹⁸

References

- ¹ *An Investigation of Water Usage in Casual Dining Restaurants in Kansas*. Kansas State University.
- ² *Energy Star*. EPA.
- ³ *WaterSense*. EPA.
- ⁴ *Industrial Water Audit*. Texas Water Development Board.
- ⁵ *Energy Efficiency in Water and Wastewater Facilities*. EPA.
- ⁶ *WaterSense: H2Otel Challenge*. EPA.
- ⁷ Green Restaurant Association.
- ⁸ *Energy Star: Guide for Cafes, Restaurants, and Institutional Kitchens*. EPA.
- ⁹ *Energy Star: Commercial Dishwashers*. EPA.
- ¹⁰ *WaterSense: Pre-Rinse Spray Valves*. EPA.
- ¹¹ *Conservation Technologies*. Arizona Department of Water Resources.
- ¹² *Energy Efficiency in the Kitchen*. Green Hotelier.
- ¹³ Food Service Technology Center.
- ¹⁴ *Fats, Oils and Grease (FOG)*. Texas Commission on Environmental Quality.
- ¹⁵ *AZ FOG Group*. Arizona Water Association.
- ¹⁶ *Biodiesel*. U.S. Department of Energy.
- ¹⁷ *Recycling Locator*. ADEQ.
- ¹⁸ *Tempe Grease Cooperative*. City of Tempe.